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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,873	11/13/2003	Mark L. Younie	05165.1340	6292

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EXAMINER

DAVIS, ROBERT B

ART UNIT PAPER NUMBER

1722

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,873

Applicant(s)

YOUNIE ET AL.

Examiner

Robert B. Davis

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 21-26 and 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20, 27 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-20, 27 and 31, in the reply filed on August 30, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 21-26 and 28-30 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 30, 2006.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Kamborian (2,770,823: figures 1-5; column 2, line 41 to page 3, line 5; column 3, lines 19-28 and 44-65; and column 5, lines 52-63).

Kamborian teaches an apparatus for making an item, comprising: a container (rectangular metal box 10) having an upper opening, a flexible membrane (26) clamped to the open edge of the box (10: see column 3, lines 44-51); and support media (24) disposed within the container (box 10) and the diaphragm (26), see figures 4 and 5.

Art Unit: 1722

The support media (24) is a mixture of magnetizable particles and oil to form a fluid mixture that is fixed in a desired orientation by applying a magnetic field, see column 2, line 41 to page 3, line 28. The instant specification does not provide any guidance for the support media except for magnetorheological fluid; hence, the metallic particulate mixed with oil is clearly a magnetorheological fluid.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 1, 5, 10, 11, 13, 15-17 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne (2,513,785: figures 1-6; column 2, line 54 to column 5, line 11) taken together with Uchimura et al (4,931,242: figures 3 and 4; and column 4, lines 40-52).

Art Unit: 1722

Browne teaches an apparatus for making an item, comprising: a container (12) having an interior and an upper opening, a flexible membrane (18a) attached to the container by a cord or spring seizing (19), support media (S) disposed with the container in the interior, and an inlet for application of vacuum to the support media to fix the support media in the desired shape applied to the membrane by pattern or mold plug (T) attached to the top (42). Pair of seals (17, 34) is connected to the container and top to seal the forming cavity during the duplication step. It is inherent that the cord or spring is either plastic or metal. The reference has a frame assembly attached to upper bolster (42) that opens and closes the mold assembly of figure 6. The reference does not disclose the use of a valve to shut off the vacuum source.

Uchimura et al disclose a reconfigurable molding apparatus comprising a container (24), a diaphragm (17), support media (19) and a valve (22) to shut-off a vacuum source. The reference also discloses using a vibrator to assure a high packing density of the filler (19).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Browne by supplying a valve to switch on and off the vacuum source to the container as disclosed by Uchimura et al for the purpose of allowing the vacuum source to be turned off after the impression has been formed.

8. Claim 1, 5, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mead (2,488,922: figure 4; column 1, lines 11-22; column 1, line 49 to column 2, line 14; column 2, line 47 to column 3, line 7 and column 4, line 66 to column 5, line 10)

Art Unit: 1722

taken together with Uchimura et al (4,931,242: figures 3 and 4; and column 4, lines 40-52).

Mead teaches an apparatus for making an item, comprising: a container (18) having an interior and an upper opening, a flexible membrane (19) attached to the container by a band (17), support media (10) disposed with the container in the interior, and an inlet (20) for application of vacuum to the support media to fix the support media in the desired shape applied to the membrane by a pattern. It is inherent that the band (17) is either plastic or metal. The reference does not disclose the use of a valve to shut off the vacuum source.

Uchimura et al disclose a reconfigurable molding apparatus comprising a container (24), a diaphragm (17), support media (19) and a valve (22) to shut-off a vacuum source. The reference also discloses using a vibrator to assure a high packing density of the filler (19).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Mead by supplying a valve to switch on and off the vacuum source to the container as disclosed by Uchimura et al for the purpose of allowing the vacuum source to be turned off after the impression has been formed.

9. Claims 2-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Browne or Mead with Goodno (5,262,121: figure 13, column 4, lines 54-65 and column 7, line 60 to column 8, line 13).

Each primary reference discloses a reconfigurable mold assembly comprising a support media contained between a container and a flexible membrane. These

Art Unit: 1722

references do not disclose ceramic spheres having a diameter of 0.020-0.25 inches. Each reference discloses sand as the support media. These references also do not disclose that the membrane is made of silicone.

Goodno discloses a reconfigurable mandrel comprising a silicone rubber filled with ceramic spheres having a diameter of 0.01-0.50 inches. The reference states that the ceramic spheres are used in place of sand because the bulk density of sand is approximately 5 times that of the ceramic spheres.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of either Browne or Mead by using ceramic spheres having a diameter of 0.01-0.5 inches as disclosed by Goodno for the purpose of forming a reconfigurable mold being lighter in weight in comparison to a mold formed using sand. It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Browne or Mead by using a silicone membrane for containing a support media as disclosed by Goodno as silicone rubber is a well known mold material which is suitable for conforming to a desired shape.

10. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne taken together with Uchimura et al as applied to claims 1, 5, 10, 11, 13, 15 and 27 above, and further in view of Blake (Civil Engineer's Reference Book, 4th edition, 1989, section 37.5.5).

The combination of Browne and Uchimura et al disclose using a vibrator to improve the packing density of a support material, but the references do not disclose an embedded or mounted vibrator.

Blake discloses internal vibrators and fixed external vibrators to compact concrete. The reference illustrates that internal and externally mounted vibrators are used to tamp molding materials.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the combination of Browne and Uchimura et al by using either an internal or externally fixed vibrator to tamp a molded material as disclosed by Blake for the purpose of improving the packing of the molding material within the mold.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Browne or Mead taken together with Uchimura et al as applied to claim 1 above, and further in view of Kozuka et al (4,160,003: figures 2-5).

The combination of Browne or Mead taken together with Uchimura et al disclose all claimed features except for the use an inflatable air bladder within the container.

Kozuka et al disclose a container (4) containing a mold surface (2) conforming to the shape of a plug (1), a support media (5), a vacuum source (3A) to fix the support media in the shape of the plug (1) and a flexible bladder (6) which compresses the back side of the support media opposite the molding surface.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of the previous combination by using a flexible bladder opposite the molding surface to seal the container and reduce the volume of the support media to reduce the weight of the reconfigurable mold.

Art Unit: 1722

12. Claims 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Browne taken together with Uchimura et al as applied to claims 1, 5, 10, 11, 13, 15 and 27 above, and further in view of Grawey et al (3,883,287: figures 1, 6 and 7).

The combination of Browne and Uchimura et al disclose all claimed features except for the use of a latching system and a pulley system.

Grawey et al disclose a mold opening/closing assembly comprising: an upper molding member (54) attached to a lower molding member (16, 48) by means of latches (60) and lifting means (14) inherently included a pulley.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Browne by using a plurality of latches as taught by Grawey et al to keep the mold assembly clamped to ensure equal clamping pressure across the molding surface. It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Browne by using a pulley lifting system as disclosed by Grawey et al for the purpose of allowing opening of the molding assembly.

13. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Browne taken together with Uchimura et al as applied to claims 1, 5, 10, 11, 13, 15 and 27 above, and further in view of Konishi (4,599,062: figures 4-6 and column 4, lines 5-9).

The combination of Browne and Uchimura et al disclose all claimed features except for the use of a three guide posts.

Konishi discloses a molding assembly comprising upper and lower molds that are clamped together wherein the assembly uses four guide posts (23) secured to the upper mold to guide the upper and lower molds together upon clamping.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Browne by using four guide posts as disclosed by Konishi for the purpose of accurately guiding the opposing mold members together upon closing to prevent misalignment and damage to the molding members.

Conclusion

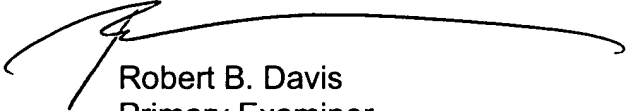
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining references illustrate the state of the art of reconfigurable molds.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Davis whose telephone number is 571-272-1129. The examiner can normally be reached on Monday-Friday 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1722

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Robert B. Davis
Primary Examiner
Art Unit 1722

9/13/06